NPS Climate Change Scenario Planning (CCSP) Workshop
Northwest Alaska Parks: Cape Krusenstern and Bering Land Bridge

Anchorage, Alaska

19-21 April 2011

Narratives

Please note that – like the rest of this draft report -- these narratives are NOT yet in their final form. They are still awaiting feedback from group members. Feel free to make comments, suggestions, and changes.

"Climate Kumbaya: Successfully Coping with Climate Change"

Abstract for the keynote speech at Beringea Climate Change Conference (given by BELA superintendant)

Changes in BELA and surrounding environs continue to be pronounced and dramatic. Because of our long term inventory and monitoring program, we have been able to document extensive changes to habitats which have affected fish and wildlife in the area. Some examples of these changes include loss of wetlands and increased drying, increased frequency and severity of fire, increased salinization of coastal areas, increased shrubification of tundra habitats, and dramatic changes to species composition of plants and animals. We are partnering with USFWS, NMFS and other agencies to document changes in distributions and movements of key wildlife species—e.g., walrus and ice seals are no longer very abundant in our area, and whales are changing migration patterns. Because of loss of marine mammal resources, subsistence hunters are shifting to terrestrial wildlife resources, especially caribou, moose and musk ox. Fortunately, the Federal Subsistence Board has proven to be nimble in responding to the needs of subsistence users, in large part because of the multi agency working groups that focus on NW caribou herd and musk ox. These sorts of wildlife working groups have allowed us to find streamlined solutions to our problems, but these issues are complex and ever-changing.

We had success in moving the village of Shishmaref by working with local agencies to provide a good location to suit the village's needs. This relocation had the potential to cause huge amounts of contention because of using parklands, but due to cooperation between agencies, local peoples, and funding agencies, it was a success. Shishmaref is a poster child for climate impact on coastal communities, and a spotlight shines on this area as an example of successful global climate change mitigation. We continue to experience extreme storm events and extensive coastal erosion, and this will continue. Our continued cooperation with Shishmaref emergency services has allowed us to provide safe travel and shelter for locals.

Economically, local communities continue to benefit from the new offshore ground fisheries for cod and pollock, but the bycatch issue that plagued the Bering Sea decades ago is something we are still struggling with. Economic spin-offs from oil and gas development and mining in the general area have also increased economic opportunity, but at some costs to subsistence users and local values. The new Coast Guard station in Nome has been an economic boon and increased safety in the Bering Strait.

We've seen an increase in park visitation which has provided economic benefits but also created some additional challenges for park management. Pressure has arisen to finally put a road in to Nome which has increased the pressure on BELA to provide increased visitor services. We continue to try to find transport alternatives to Serpentine Hot Springs to allow for adequate visitation while keeping the springs' rustic feel. We are also working with the cruise industry to increase options for visitor experiences. Our cabins are being heated by geothermal or solar energy sources.

We have developed fire management options that rotate but still allow fires to occur on the landscape. These fire management options work to protect critical caribou winter habitat. However, stresses on caribou still continue due to climate change induced rain on ice events and habitat changes.

Due to the cultural resource challenge of the last few decades and an influx of funding, we have been better able to document, preserve, and protect archaeological and paleontological resources. We now have extensive and accurate cultural and ethnographic inventories for the area, which have contributed to a better understanding of Bering Land Bridge.

Despite some successes in dealing with climate change issues, climate change solutions are moving targets which continue to create new challenges and opportunities for BELA. These challenges include: wildlife management as wildlife population and subsistence patterns continue to change; partnership development and maintenance of critical levels of funding; a continued international presence across the Bering Strait with our Russian partners; and changing priorities and initiatives that compete for funding with climate change.

"The Sign"

A short skit set in the year 2060

A family is on a beach that used to be part of Bering Land Bridge National Park. The family is hunting for sea lions. The hunters have gone up to the haul-out. As they wait for the hunters to return, a young woman picks up an old faded sign with only a couple of letters left on it. "I wonder what this was?" she says to her grandmother. "Anyhow, it would make a good table. There's plenty of other driftwood for the fire."

The grandmother says, "Oh, that's the old park sign."

The young woman sets up the old sign as a table.

The old woman says, "I'm so glad my nephew came to hunt with us. It's been almost a year now since we lost his brother. That was so hard for him, and for all of us. His father was such a good provider, until he moved to Nome. The family kind of fell apart then, when the village was evacuated. That was really a shame. The storms got so bad, and we just couldn't get any help, not even rocks. There was no clean water anymore either. Folks were getting sick. Things got really bad. Even before the big storm, the village was cut off when the flooding washed out all the roads."

As they make the fire, the young woman says, "I sure hope the hunters get lucky. It's too bad our cousin in Nome didn't have the opportunity to harvest sea lions. He sure would have had fun, and he'd like the meat. I miss the taste of walrus, though, from when I was little."

The grandmother says, "Your cousin sure had a hard time in high school. I regret that he didn't have the chance to learn the traditional skills his father had."

Her granddaughter nods. "And he could have done a lot of moose hunting, now that there's enough for everyone – but not this time of year, though, when they're getting so buggy from this heat."

The hunters return, triumphant, and are greeted and congratulated.

Later, as they sit and eat sea lion around the old park sign, they discuss past hunts.

An older man says, "It's kind of scary these days, trying to get across rivers when the ice is so thin, even in the middle of winter."

"It's hard to get around," agrees another. "And I miss being able to go out on the ice to fish."

"That doesn't worry me as much as those cruise ships. Seems like they don't pay attention to small boats, and they make so much noise, and pollute the water. Sure doesn't help the hunters."

"I think the oil rigs are the worst. They say they're not spilling anything, but I've seen slicks on the water."

"Well, the government sure isn't going to do anything about it."

"We'll just have to do the best we can with what's left."

They all fall silent and enjoy their meat.

As the meal ends, they toss the old sign onto the fire. The last letters of "Bering Land Bridge National Park" turn black and disappear.

"Katrina Comes to The Chukchi Sea"

Testimony to Congress
April 2030

Con Cerne, Superintendent of Western Arctic National Parklands:

Esteemed Senators:

Two months ago, a huge category four storm occurred in the Chukchi Sea with winds reaching 150 miles per hour and sea waves cresting to 30 feet. Open leads in sea ice enabled winds and waves to hurl large chunks of ice into oil platforms and fragile coasts with reduced permafrost depth. Oil platforms and fuel tanks in coastal areas were damaged and a large oil spill washed into lagoons surrounding Cape Krusenstern National Monument and Bering Land Bridge National Preserve. Coastal villages Shishmaref and Kivalina were devastated despite rock walls, and communications in the region, other than a few satellite phones, were down for weeks. Landing strips in these communities and hub communities were over-washed and were unusable for large aircraft. Extreme winds demolished large container storage buildings at the Red Dog Mine port facility, and lead and zinc concentrate were dispersed over the shrubby tundra.

Native organizations came to the rescue of surviving residents. They organized the relocation and distribution of food, and they were in charge of all on-site activities. The nearest federal emergency response unit was in the Aleutian Islands, and they were unable to get to the disaster area for weeks. Residents of damaged communities relocated to other towns, Red Dog Mine, and to refugee camps both outside and inside the parks, such as Serpentine Hot Springs. Park infrastructure in Kotzebue was destroyed, and NPS operations moved to Nome where minor damage occurred.

Local resident survivors were hired to help with cleanup response, but outsiders were also brought in to help with efforts. Once the storm abated, the affected area was declared a disaster and in a state of emergency. The National Guard was deployed via large helicopters. Because of other multiple, long-term crises and a monstrous deficit, federal disaster funding was depleted. International press

interest was high, but it was difficult to accommodate reporters to the disaster zone, so there is little press coverage from the ground. Images are provided via Google Earth satellites and over flights.

Missionaries, Red Cross, and native grassroots groups arrived to help, but conflict arose due to the National Guard's need to control and contain the situation.

The extreme warming trend has already weakened subsistence resources and cultural traditions. Community members were already frustrated with the lack of agency response to conserve subsistence resources, but are now in a crisis mode. Cultural resources were exposed in coastal areas during the storm event, and it was alleged that cleanup crews looted resources.

Migratory birds are expected within a month, but the salt water and oil breach of the lagoons is not yet cleaned up. The remaining musk ox herds near Cape Krusenstern and Cape Espenberg were caught in the storm and extirpated.

Local residents question response time and government efforts. Local native leaders have requested funding to flow directly to communities because they were the ones best able to manage response efforts. Village and regional Native organizations are also requesting relaxation or removal of all federal regulations regarding subsistence activities and assistance with firewood and other fuel sources. China, who has a strong economy, has sent messengers offering financial and logistical help in exchange for increased access to natural resources in the region.

I. M. Smooth, Senior Senator of Alaska:

Thank you Superintendent Cerne. Given our national financial situation and deteriorated conditions in Northwestern Alaska, what do you recommend Congress and the Administration do about this disaster at this time and to prepare better for the future?

Superintendent Con Cerne:

Thank you for the question Senator Smooth.

First, security of the local populations needs to be established. The Department of Homeland Security needs to step up its presence and work cooperatively with local governmental entities and Native organizations. Contaminated coasts and tundra need to be cleaned up as soon as possible. The National Park Service stands ready to help in any way it can.

Secondly, economic, natural, and cultural resources in the affected area need protection, especially with international presence and interest in the area. Rebuilt infrastructure in the area needs to take into account the extreme warming trends with reduced ice cover and increased storminess with storm surges. We need interagency strategic plans that address climate change and disasters such as this recent one that incorporate a robust consultation process with local communities, industry, and governmental entities in the region from national to local levels. Right now we need to clean oil from the most critical fish and wildlife habitat in the coastal lagoons before spring migrations bring threatened and endangered species and important subsistence resources back to these areas. We also need to conduct archeological triage for the affected coastal areas.

In the long run the National Park Service needs to update its General Management Plans for affected area parks to consider climate change impacts and reaffirm park purposes, relevance, and objectives, including emphasis on naturalness but allowing for a certain level of manipulation to protect threatened and endangered resources, including important subsistence resources for local rural populations. We also need to complete oral histories of surviving local residents with traditional ecological and local knowledge before it is lost forever. We need to prioritize recovery of data from archeological sites near threatened coasts before they too are lost forever. We need to continue monitoring coast lines and critical fish and wildlife habitat because these areas are changing rapidly with the warming and increasingly stormy conditions. Information collected by local, state, federal, and

international entities in the area need to be shared and seamless because not any one party can complete all of the work for any one species or resource.

Thank you for the opportunity to share our ideas with the Senate. I am certain the U.S. Coast Guard, Fish and Wildlife Service, Bureau of Land Management, EPA, State of Alaska, Northwest Arctic Borough, NANA, Bering Straits Native Corporation, Kawerak, Maniilaq, local tribes, and village corporations also have much to say along these lines. I certainly hope the Congress can steer some of its precious financial resources in our direction. This area is, after all, important to our national well-being and security with its strategic location along popular arctic shipping lanes, extraction from large mineral and oil and gas deposits, and priceless wildlife, archeological and subsistence resources.

I. M. Smooth, Senior Senator of Alaska:

Thank you Superintendent Cerne. Excellent ideas. Next up!

"Chronic Directional Change"

Briefing Statement
Revised: December 3, 2030

To: Superintendent, Western Arctic National Parklands
From: Staff Wildlife Biologist
Through: Chief of Natural and Subsistence Resources
Subject: Northern Seward Peninsula Caribou Herd Working Group (NSPCHWG) proposals

The NSPCHWG will meet next week to consider new proposals related to caribou herd protection and management. Several proposals have already been advanced to agency staff as informal suggestions, though not yet been formally submitted to the group for action. This briefing paper is to provide background on the issues, identify topics that we expect to be presented at the meeting, and to explain the basis for current agency positions on this issue.

Background: The NSPCH is one of several herds that collectively make up the remnants of the Western Arctic Caribou Herd (WACH), which splintered into several smaller populations over the last 20 years. The NSPCH currently numbers 35,000 animals, or about half of the total remnant WACH population. The WACHonce numbered about 500,000 animals. Most experts attribute the herd's breakup to habitat fragmentation, in part due to a long series of large-scale tundra fires that devastated much of the suitable winter caribou habitat, possibly confounded by traffic along a maze of new roads associated with mineral resource development. The herd has also experienced a combination of other pressures, such as a gradual long-term change in land cover vegetation, periodically severe losses as a result of rain on snow and icing events, and steadily increasing subsistence pressures as marine harvests declined with diminished sea ice. Most of the mineral resource development concerns working in the region have implemented voluntary bans on employee hunting in the vicinity of the mines and along haul roads. While widely supported, these actions have not been sufficient to reverse the long term declining trend in caribou numbers.

Pending Proposals: Several NSPCHWG members have recently fielded calls to discuss the proposals for consideration during the upcoming meeting, including a number of increasingly-intensive resource management approaches. The proposed actions are intended to improve caribou survival and condition and increase rural harvest success. The following ideas have been mentioned as possible proposals:

1. Predator removal
2. Phase out of state hunting permits for caribou and other subsistence species
3. Expanded enforcement of local subsistence preferences for hunting permits
4. Snow plowing to expose winter forage for caribou
5. Mechanical reversal of shrub and forest encroachment by chaining (dragging a length of heavy chain or cable between bulldozers moving in parallel)
6. Distribution of lichen propagules into recently burned or cleared areas
7. Seeding of burned areas with high nutrient annual forage plants (e.g. grains)
8. Fertilization to enhance herbaceous growth rates
9. Expanded use of calving pens to protect vulnerable caribou cows and calves from predators
10. Winter feeding of caribou herds along access roads. (Note: Winter feeding of caribou herds is apparently more feasible now due recent expansion of the road network. Program costs might be recouped by collection and sale of shed antlers by local youth groups – perhaps junior rangers.)
11. Expanded reindeer ranching and range fencing

Biologist's Perspective: Biologists from multiple agencies have been monitoring caribou herd status and trends for more than three decades. Numerous studies document long-term habitat stress due to directional environmental change. Caribou are one of many species stressed by more than 50 years of cumulative climate change and developmental pressures. Review of long-term monitoring data by agency botanists, indicates shrub encroachment into former lichen range since at least the mid-1950's. Annual grasses and several exotic weed species have also expanded into burned tundra. Research indicates that shrubs, weeds, and annual grasses do not afford sufficient winter forage. Many areas still dominated by the lichen species necessary for optimal caribou nutrition are severely degraded and already over-grazed. The causative factors of widespread lichen decline are actively investigated, and there appear to be a number of contributing factors. Use of high-sulfur fuels (coal for energy production and diesel for transportation) remains problematic despite regulatory controls. Regional expansion of open pit mining has also complicated efforts at controlling fugitive dusts, including heavy metals. However, regional support for the economic benefits of mineral development and locally-produced fuels are strong and increasing.

There is strong scientific consensus that Alaska's temporary reprieve from the globally-severe temperature rise of the last 30 years is coming to an end. Indications are that the Pacific Decadal Oscillation has begun to shift from the extended cold phase that we've "enjoyed" for the last 20-30 years into a warm phase of uncertain magnitude and duration. If the coming decades are characterized by rapid temperature increases equal to or exceeding other polar areas, then Northwest Alaska can expect extensive and potentially rapid habitat conversion to species more tolerant of warm dry conditions and short fire return intervals.

Recommendation: Agency biologists strongly recommend allowing for continuity of ecological processes, biodiversity and evolution, while expanding interagency efforts to restore connectivity of migratory routes between fragmented habitats. Several range biologists have expressed concerns that short-term expansion of herd size by artificial means could eventually result in weaker stocks as the available winter range is further degraded. Natural predation to remove weaker individuals is an important selective pressure. Local resistance to this approach can be expected, as it will likely be perceived as another attempt by the agencies to stall needed actions by prioritizing intangible wilderness values over the immediate needs of community.